



MEMORANDUM

May 17, 2005

To: Hatchery Reform Coordinating Committee
From: HSRG Chair Lars Mobrand
Re: HSRG Steelhead Recommendations

The HSRG understands that the co-managers are presently developing a new statewide steelhead management plan, beginning with a white paper. Recent conversations with co-manager personnel and stakeholders indicate that there is some confusion about the HSRG's recommendations relating to Puget Sound and coastal Washington hatchery steelhead programs. The following bullets are presented to help clear up this confusion. We hope they will also be useful in the drafting of the white paper. The HSRG remains interested in providing technical and scientific assistance to the co-managers in the development of the white paper and management plan.

- During the regional review process, the co-managers identified most naturally-spawning steelhead stocks in Puget Sound and coastal Washington as being of high biological significance and low abundance/productivity.
- Most hatchery programs were identified as segregated harvest and released/outplanted non-native stocks of Chambers or Skamania origin. This approach was ubiquitous across the system.
- Also ubiquitous in these programs was inadequate provision for the recapture of unharvested returning hatchery adults.
- Currently, few steelhead programs in Puget Sound are providing significant harvest.
- While it is difficult to monitor escapement and survival of steelhead, it has been shown that significant genetic and ecological^{1,2} interactions occur between hatchery- and natural-origin steelhead. For example, there is a spawning overlap between the hatchery (Chambers Creek origin), early-timed, winter run stock and the native, late-timed winter run stock at Forks Creek.
- Even small contributions from segregated hatchery populations to small natural populations can lead to a significant loss of fitness.
- Any segregated harvest program conducted under these circumstances will pose a high risk to naturally-spawning steelhead stocks. This creates a conflict between the co-

¹ Mackey, G., J.E. McLean, and T.P. Quinn. 2001. Comparisons of run timing, spatial distribution, and length of wild and newly established hatchery populations of steelhead in Forks Creek, Washington. *North American Journal of Fisheries Management* 21:717-724.

² Kostow, K.E., A.R. Marshall, and S.R. Phelps. 2003. Naturally spawning hatchery steelhead contribute to smolt production but experience low reproductive success. *Transactions by the American Fisheries Society* 132:780-790.

managers' steelhead harvest goals and their conservation goals for natural steelhead populations.

- Because of low abundance and productivity, wild steelhead populations in Puget Sound cannot provide the natural-origin broodstock needed to support integrated harvest programs. Therefore, integrated harvest programs are not currently a viable alternative in most places.
- The steelhead recommendations that resulted from the HSRG's regional reviews were designed to resolve the conflict identified above between the co-managers' harvest and conservation goals. These recommendations include the following elements:
 - Select a balance of large and small streams and habitat types in each region that are not planted with hatchery fish and are instead managed for native stocks. This would reduce the risk of naturally spawning fish interbreeding with hatchery fish, and provide native stocks for future fisheries programs.
 - Fishing for steelhead in these streams would not be incompatible with this approach, but no hatchery-produced steelhead should be introduced.
 - To meet harvest goals, hatchery releases should be in those streams selected for hatchery production. Use locally-adapted broodstock for those streams.
 - Decrease reliance on out-of-basin transfers to backfill shortages in locally adapting hatchery stock. Actions such as harvest restrictions should be implemented to achieve 100% local broodstock.
 - Manage the hatchery stock to maintain its early spawn timing and reduce the likelihood of interaction with naturally-spawning steelhead.
 - Include adult collection capability wherever steelhead are released, to capture as many adults from the returning segregated population as possible. Discontinue releases where adults cannot be collected at return. Investigate feasible sites with adult collection capability, so that returning adults can be collected and removed from natural spawning population.
 - Size the hatchery program in a manner that achieves harvest goals with minimal impact on wild populations.
 - Release hatchery yearling steelhead smolts between April 15 and May 15 at target size of six fish to the pound, and a condition factor of less than 1.0.
 - Implement monitoring and evaluation as a basic component.
 - Investigate the reasons for the recent decline in adult winter steelhead returns, formulate a working hypothesis for the decline and take appropriate actions.